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LAYING OUT FIELDS *for* TRACTOR PLOWING



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TRACTOR PLOWING usually requires methods of laying out fields different from those followed in plowing with horses and an ordinary plow.

Farmers using a tractor for plowing are often at a loss to find the most satisfactory method of laying out their fields.

A method admirably suited to one size of tractor under certain field conditions may not be satisfactory for some other size or under different conditions.

This bulletin describes the more common methods recommended by farmers who use tractors for plowing. Among these will be found methods suited to laying out fields of different shapes.

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LAYING OUT FIELDS FOR TRACTOR PLOWING

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FACTORS TO BE CONSIDERED IN MAKING PLANS FOR TRACTOR PLOWING

FARMERS who plow with tractors want to do a high-class job of plowing over the entire field and to reduce to a minimum the time spent in turning and in traveling with plow bottoms out of the ground. To accomplish this they must choose the method which is best suited to their conditions. Many circumstances must be considered in deciding just what method is best for a particular field with a particular outfit. There is no one method which can be considered best for every size and shape of field.

Methods of laying out fields for tractor plowing fall into two classes: (1) Those in which the bottoms are lifted in crossing the ends; (2) those in which they are not lifted. The advantages of methods of the first class are that short turns are eliminated, except in some cases at the beginning and ending of the lands, and that it is generally possible to do a little higher quality of plowing at the corners or turns. The advantages of methods of the second class are that little or no time is lost in traveling with the bottoms out of the ground and that ordinarily the number of deadfurrows and back-furrows will be considerably less.

The longer the time spent in turning or running with the bottoms lifted, the smaller the acreage that can be plowed in a day; on the other hand, the making of short turns is awkward with some tractors, particularly the larger ones, and the operator often has difficulty in getting the outfit in the correct position for starting the furrows after such turns have been made. Though it may pay to make some

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additional effort to avoid short turns when using a large tractor, it should be borne in mind that the loss in time and fuel due to making long idle runs across the ends of the field is just as serious with the large as it is with the smaller, more easily handled tractor. The time lost in making loop turns in starting and finishing a large number of lands is less with a tractor having brakes to assist in making short turns. This should be taken into consideration in deciding on the most desirable size and number of lands. From the standpoint of time lost in idle running, the size of the tractor should be considered only with reference to the relative difficulty in making short turns.

In deciding on the method to use, the ease of handling the tractor and plow is not always the most important thing to consider. In areas of heavy rainfall it may be best to make narrow lands with frequent deadfurrows and backfurrows as an aid to drainage; in dry areas the reverse may be true. In other cases the contour or shape of the field may be such as to determine almost entirely the method that must be followed.

If the field is rectangular and level enough so that the contour does not have to be considered, the choice between a method of the first class and one of the second class will usually depend on how short a turn can be made with the tractor and plow and how objectionable the additional backfurrows and deadfurrows are.

METHODS IN WHICH BOTTOMS ARE LIFTED AT THE ENDS

If it is decided that a method of the first class, in which the bottoms will be out of the ground in going across the ends of the field, is to be used, it must then be decided into how many lands the field should be divided for best results, how wide to leave the head lands on which to turn, and where to set the guide stakes or markers.

WIDTH AND NUMBER OF LANDS

The wider the lands are made the fewer will be the deadfurrows and backfurrows, but the greater will be the time consumed in idle running across the ends. Some idea of the distance traveled with the bottoms out of the ground can be obtained by considering a specific case.

Suppose a field 40 rods wide is to be plowed in this manner, one land at a time, and that it is laid off into five lands of 132 feet each. If the tractor is pulling a three-bottom 14-inch plow, it will take about 38 trips across the field to plow out each land. If the extra distances that the tractor must cover in swinging out of the furrow and back into it again, and in making the short or figure-eight turns in starting a backfurrow land or finishing a deadfurrow are ignored, the average length of travel across the ends—that is, the average distance in a straight line from where the bottoms are lifted out of the ground to where they enter it again—is half the width of the land, or 66 feet. This makes 2,508 feet, or almost a half mile, for each land, and almost $2\frac{1}{2}$ miles of idle travel in plowing the entire field.

If the field were laid out in 11 lands, each 60 feet wide, the unproductive travel at the ends would be reduced to approximately 1 mile,

but this reduction would be largely offset by the greater number of figure-eight turns necessary in starting the extra lands and also the probability of the plow running at less than its full width of cut for a considerable distance in finishing the extra number of lands; if the field were laid out in only three lands the travel across the ends would be increased to about 4 miles, but there would be only two deadfurrows to finish out with the possibility of the plow not cutting its full width.

The longer time necessary to make the difficult turns at each back-furrow or deadfurrow, which must be added to the time to travel these straight-line distances, will reduce the advantage of the narrow lands in this respect to a certain degree; but ordinarily a tractor that pulls a three-bottom plow and has a comparatively short turning radius and makes short turns fairly quickly, will plow a strip 40 rods wide laid out in five lands in about an hour less than if it were laid out in three lands.

The length of the field is also of importance in deciding the width of the land, since the time lost in turning on a short field for a given width of land is much greater in proportion to the total time required to plow it than on a long field. For this reason a wider land is usually selected when the field is long than for short fields.

The dimensions of the field will determine whether the saving in time in making narrow lands is sufficient to offset the disadvantages of the extra deadfurrows and backfurrows and any difficulties of making short turns. The most popular width under average conditions seems to be about 100 feet for a two- or three-bottom plow. However, if the field has no irregularities, its entire width should be measured and divided into lands of approximately equal width.

HEADLANDS

The width of the headland will depend largely on the total length of the tractor and plow and the turning radius of the tractor. Some farmers with very easily handled outfits do not leave more than 10 to 15 feet; however, any extra ground in the headland can be plowed just as quickly as if it were plowed with the body of the field, and plenty of room should always be left to allow easy turning and to get the outfit headed in properly at the beginning of the furrows. The wider the headland, the less the tendency to go over the same ground repeatedly in turning at the ends and to pack it tight when plowing out the lands.

Headlands 15 to 25 feet wide may be suitable when one of the smaller outfits is to be used. Most tractors built recently can be turned in less space than is required by some of the older models. With a large tractor pulling two or more units of plows it may be desirable to make the headlands 75 to 100 feet wide. With most outfits a headland one and a half times the total length of the tractor and plow will give plenty of room for turning. It is a good idea, particularly with the larger outfits, to make the border or headlands a multiple of the width cut by the plow. That is, a headland $17\frac{1}{2}$, 21, $24\frac{1}{2}$, or 28 feet wide would plow out even in 5, 6, 7, or 8 rounds with a three-bottom 14-inch plow taking a full cut every round.

If the field is fenced on all sides a border the same width as the headlands may be left on each side, and it will be possible to finish the field neatly by plowing around the entire field, throwing the furrows either in or out as is required to keep the field level.

If one end of the field is unfenced and the outfit can be pulled out into a road or lane or an adjoining field for turning, it may be preferable to plow up to the fences on the two sides as the body of the field is being plowed and leave only the one headland across the end of the field which is fenced. Such a headland may be plowed later with either a deadfurrow or backfurrow through the center.

Many farmers mark the edge of the headland by plowing a shallow "scratch furrow" across the end of the field before starting on the lands. This makes it easier to keep the ends of the furrows even and the headlands uniform in width. It seems to make little difference whether the scratch furrow is thrown toward or away from the edge of the field, but throwing the furrow away from the edge of the field seems to be the more common practice. This furrow across the end of the field sometimes helps the bottoms to enter the ground more quickly at the beginning of each round.

SETTING STAKES AND MARKERS

To finish up a field in the best manner without having to plow irregular or wedge-shaped strips it is essential that the lands be started straight and parallel and that the headlands be kept uniform in width. If a field is once laid out accurately and marked permanently it will not be necessary to measure off lands at each plowing. In fields that are fenced, the locations of deadfurrows and backfurrows may be readily marked by setting stakes along the fence. After this has been done, old deadfurrows can readily be found when plowing the new backfurrows even if the field is covered with tall weeds.

Most farmers "step off" the distances between lands. This method is sufficiently accurate for a lay-out in many cases, but when a permanent lay-out is to be made or a large number of narrow lands are to be laid out it may be advisable to use a tape or some other accurate method.

METHOD 1

Method 1 is probably the most popular and the most generally used of the methods in which the bottoms are lifted at the ends of the field. Two plans used alternately are advisable to maintain a level field. The method as applied to a 20-acre field 40 rods wide and 80 rods long will be outlined. With headlands 33 feet wide, the body of the field will be 36 rods wide. For such a field the two following plans may be used alternately.

PLAN A

(1) Lay out a backfurrow through the center of the field at *C*, figure 1, and plow a strip 12 rods wide about the backfurrow, lifting the bottoms 2 rods from each end of the field.

(2) Plow along one side of the land already plowed, at *B*, figure 1, turn to the left and, on the return trip across the field, plow with the first furrow 2 rods from the edge of the field to allow for the

border. Continue plowing, turning to the left until the deadfurrow is finished at *A*, which will be 6 rods from the inside edge of the border.

(3) Plow the last third of the field between the border and the furrow at *D*, figure 1, turning left at the ends and finishing the body of the field with the deadfurrow at *E*.

(4) Plow the border, traveling around the field to the right and turning the furrows toward the center of the field. This will produce two more backfurrows at the inner edge of the border on each side of the field. The field is thus finished with a single open furrow around the edge of the field.

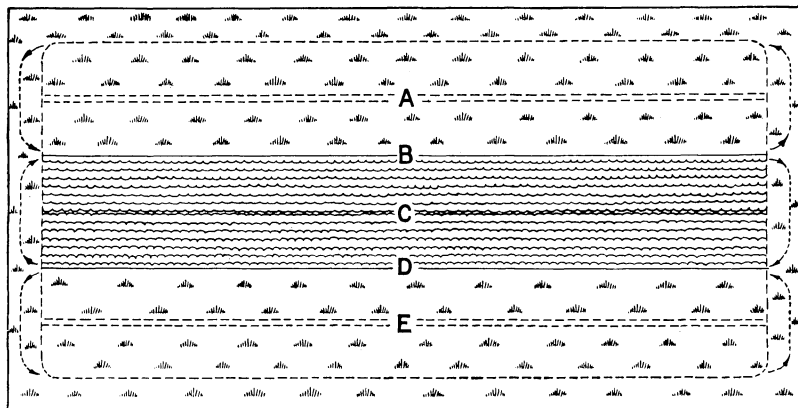


FIGURE 1.—Method 1, plan A, at the end of the first step. The locations of the two deadfurrows are shown by the double dotted lines, *A*, *E*. The direction of travel across the ends is indicated by dotted lines and arrows.

PLAN B (ALTERNATE WITH PLAN A)

This plan will be suitable for use at the next plowing after plan A, just described. Plan B applies to the field plowed according to plan A at the last plowing.

(1) There will be old deadfurrows at *A* and *E* (fig. 2). Plow a backfurrow at *A* and, turning to the right about this backfurrow, continue plowing until the one side of the land is 2 rods from the side of the field. The border is to be the same width as in plan A. The land should then be 12 rods wide.

(2) Lay out a backfurrow in the old deadfurrow at *E* (fig. 2) and plow, turning to the right until the one side of the land is 2 rods from the side of the field.

(3) One-third of the body of the field, a strip 12 rods wide, remains to be plowed between the two lands plowed in the first and second steps. Plow this out, turning to the left and finishing with a deadfurrow at *C*, through the center of the field.

(4) Plow the border. Since the furrows were thrown toward the center of the field in plowing the border at the last plowing, they should be thrown in the opposite direction at this plowing. It will then be necessary to travel around the field turning to the left, beginning at the outside of the field. This will finish the field with a dead furrow on each side at the inside edge of the border.

ALTERNATE MANNER OF FINISHING BORDERS UNDER METHOD 1

Backfurrows and deadfurrows between the border and the body of the field can be avoided as follows: When using plan A, plow the border as the first step, before plowing the body of the field, and throw the furrows away from the edge of the field, as explained in finishing plan B above. Then when plan B is used, the furrows can be thrown in again, and in this case the border would logically be plowed last.

If this method is used and the border plowed first, as in plan A, it is only necessary in laying out a field 40 rods wide to determine the location of the backfurrow through the center of the field parallel to the sides of the field and to determine when the middle third of the field has been plowed. Measuring the border width and staking out are unnecessary because the first step will be to plow around the field,

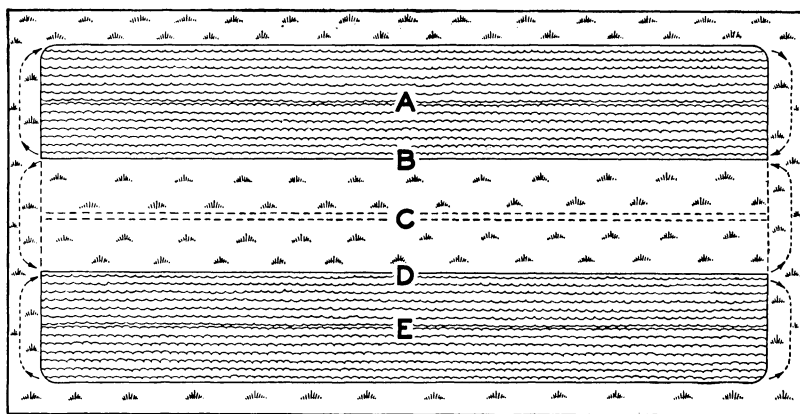


FIGURE 2.—Method 1, plan B, at the end of the second step. Note the two backfurrows at A and E are where the two deadfurrows were in plan A and the deadfurrow at C is where the backfurrow was at the previous plowing.

beginning at the edge and throwing the furrows out until the proper number of rounds are made and the border is the desired width. It is a little more difficult to make short turns on plowed ground and if it should be found, after the land is started in the center of the field, that a wider headland is needed another round or two can be plowed around the border. This will not affect the application of the plan.

This method may be used with a greater number of lands in order to make the lands narrower than outlined in this particular example or in order to adapt the method to wider fields. It should be noted that, in following method 1, half of the land between any two deadfurrows in the body of the field is first plowed, turning to the right about the backfurrow, and the other half is then plowed, turning to the left until the deadfurrow is finished. Disregarding any extra travel in making figure-eight turns at the beginning of a backfurrow or finishing a deadfurrow, and with any given number of lands, the least possible amount of time is spent in unproductive travel across the ends. With this method, where a complete border is to be plowed, there should always be a plan similar to plan A with an odd

number of backfurrows and an alternate plan similar to plan B with an even number of backfurrows.

VARIATIONS OF METHOD 1

Where there is a roadway at one end of the field suitable for turning or where there is no fence and the turns can be made in the adjacent field it may be desirable to omit the border. If the turns must be made within the field at one end this headland can be plowed as a narrow land about a backfurrow at one plowing and the opposite way at the next plowing, finishing with a deadfurrow. This may be plowed before or after plowing the main part of the field, as desired, regardless of whether plan A or plan B is followed for the rest of the field.

Similarly a narrow land may be plowed at each end of the field instead of a complete border. In this case the field need not be laid out with the backfurrows placed symmetrically, as in plans A and B, but may be laid out and plowed as in method 2, which follows.

METHOD 2

Method 2 might be considered another variation of method 1. It is similar to the previous method except that there are always the same number of backfurrows as deadfurrows; the two alternate plans under method 2 are alike except that the positions of the backfurrows and deadfurrows are reversed.

PLAN C

A 20-acre field 40 by 80 rods will again be used as an example, and the body of the field will be plowed in lands so that the maximum distance of unproductive travel across the end will be 10 rods.

(1) Lay out a backfurrow at *A*, figure 3, one-eighth of the width of the field or 5 rods from one edge of the field, and plow, turning to the right around this backfurrow, until the side of the field is reached. This land will then be 10 rods wide, and one-fourth of the field will be plowed.

(2) Lay out another backfurrow, at *C*, three-eighths of the width of the field or 15 rods from the opposite side of the field and again plow a land 10 rods wide or one-fourth of the field.

(3) Plow out the strip between these two lands, finishing with a deadfurrow at *B*.

(4) Plow the remaining one-fourth of the field, turning to the left at the ends and finishing with the deadfurrow at *D*.

(5) Plow the headlands. These may be plowed as the first step, if desired, and will serve as guide lines at the ends of the lands instead of scratch furrows.

PLAN D (ALTERNATE WITH PLAN C)

Plan D is to alternate with plan C and is the same as plan C except that it is reversed. Backfurrows would be laid out at *D* and *B* (fig. 3), and those two lands would be plowed before lands *A* and *C*. Alternating plan D with plan C maintains levelness in the field.

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METHODS IN WHICH BOTTOMS ARE LEFT IN THE GROUND IN GOING ACROSS THE ENDS

The objections to the methods already described are that they necessitate a considerable amount of travel with the bottoms idle and that there are many deadfurrows and backfurrows if an attempt is made to reduce the amount of this idle travel. The use of any of those methods usually results in a somewhat better job of plowing than use of a method involving an attempt to keep the bottoms in the ground all the time the tractor is travelling; but many farmers think that the possible reduction in quality of the work is not sufficient to offset the saving of time effected by eliminating idle travel.

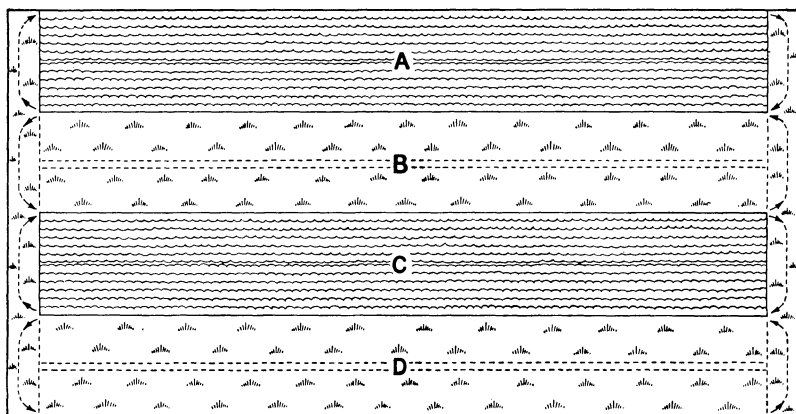


FIGURE 3.—Method 2, plan C, at the end of the second step. The order of plowing might also be C, D, A, and B. Each headland is plowed separately either before or after plowing the body of the field.

METHOD 3

By method 3 a rectangular field is plowed around a single backfurrow at the middle of the field. The bottoms are lifted only in making the comparatively few short turns on the first few trips across the ends of the field. After the plowed land becomes wide enough for the outfit to turn around the ends, the bottoms are never lifted from the ground until the field is finished.

The position and length of the backfurrow (from A to B, fig. 4) at the center of the field is determined in much the same manner as is often done in laying out a field for backfurrow plowing with horses. Make the distance from A to G enough shorter than that from A to C so that when the land is rounded off at the ends and plowing entirely around the land is begun, as indicated in figure 5, the furrows across the end will be the same distance from the edge of the field as are the furrows down the sides. The point B should be the same distance from the end of the field as A.

On the first few trips across the field, pull the outfit over to the right every time as the end is approached, so as to get the corners rounded off as soon as possible sufficiently to permit the outfit to make the turn without lifting the bottoms. Lift the bottoms and make a complete circle to the left in turning. The number of times the bottoms will have to be lifted at the ends and the outfit turned to

the left in order to get the ends in shape to go around with the bottoms in the ground will depend mostly on the turning radius of the

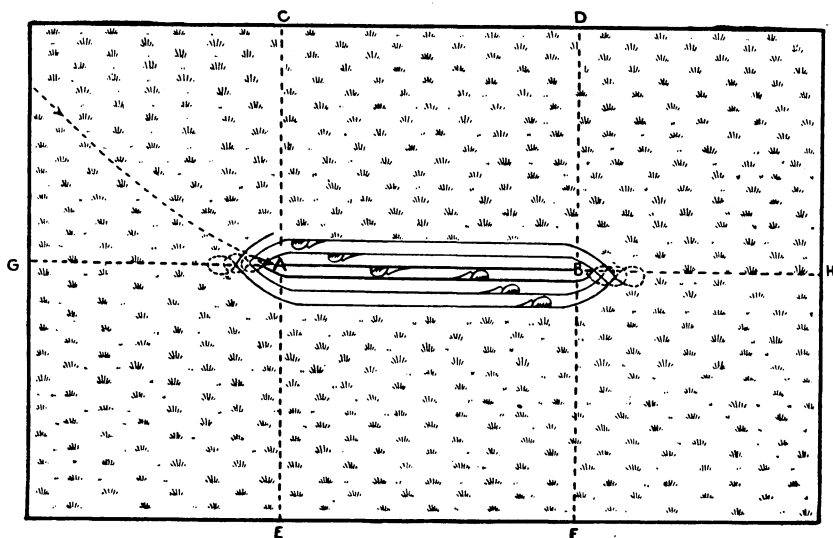


FIGURE 4.—Method 3, first stage. To begin plowing in the center of the field, a back-furrow AB is laid out in the center of the field, the distance from A to C equal to that from A to E . The continuation of this plan is shown in figure 5.

outfit and the width of the strip plowed at each trip. For some large outfits the land may have to be 75 feet or even more in width before

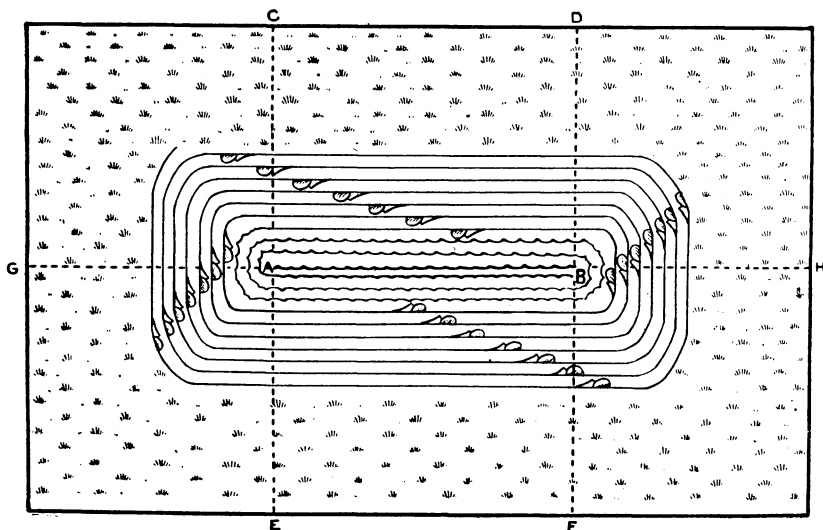


FIGURE 5.—Method 3, second stage. Plowing around the central backfurrow started in figure 4 until the field is finished.

this can be done, while a small outfit with a short turning radius may be able to turn about a strip half as wide.

Some care will be necessary in steering the tractor at the turns after the land becomes wide enough to permit leaving the bottoms

in the ground continuously, as in figure 5, if the turns are to be kept abrupt. The shorter the turns are kept the smaller will be the triangular pieces left in the corners of the field at the finish. However, if the tractor runs with one or two of the wheels in the furrow, it may be preferable to let the corners round off as they will and finish with horses later.

If the field is square, or nearly so, it can be plowed in two or more lands, each one laid out according to this method. In such a case extra pieces, each approximately twice as large as the unplowed pieces at the corners, will be left at the ends of the field between the lands.

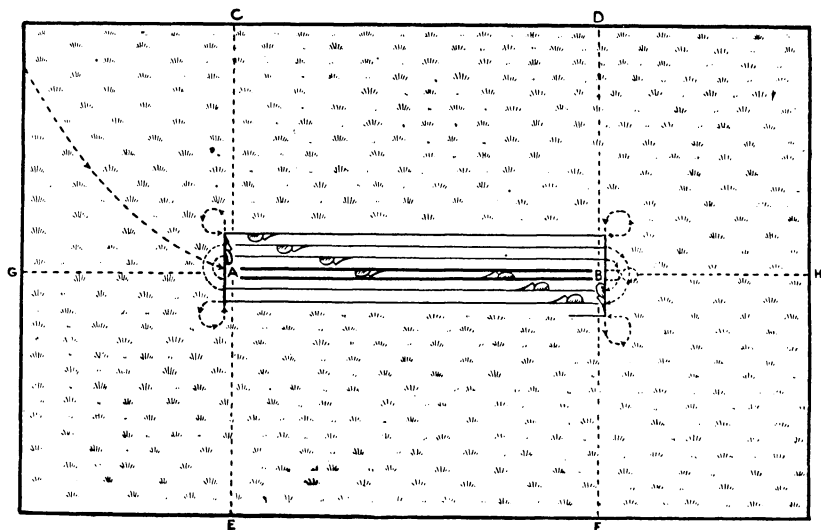


FIGURE 6.—Method 4, first stage. Plowing a field in one land by starting a backfurrow in the center of the field, the same as in figure 4. The corners are kept square by making short turns to the left and swinging around so as to plow across the ends. The continuation of this plan is shown in figure 7.

METHOD 4

In plowing by method 4 a rectangular field is laid out, just as in the preceding method, and the entire field plowed in one land about a single backfurrow.

In a field such as that shown in figure 6, the distances should be measured as was shown in figure 4. The backfurrow is laid out along the line from A to B and the bottoms lifted at the ends on the first few rounds, as indicated in figure 6, until the land is wide enough to warrant plowing across the ends. Then, as the bottoms are lifted, the outfit is turned sharply to the left and brought around, as indicated by the dotted lines at the corners in figure 6, so that it will be in line for plowing across the end when the bottoms reach the place where the furrows should begin. The corners are kept square by turning in this way (fig. 7) until the furrows get so near the fence that not enough room is left to make such a turn. Then the corners must be rounded and the tractor turned to the right.

Since this scheme keeps the corners square, except for the last few rounds, approximately the same amount of ground will be left un-

plowed in the corners of the field as is left in plowing the headland around a field, the body of which has been plowed by running with the bottoms idle across the ends:

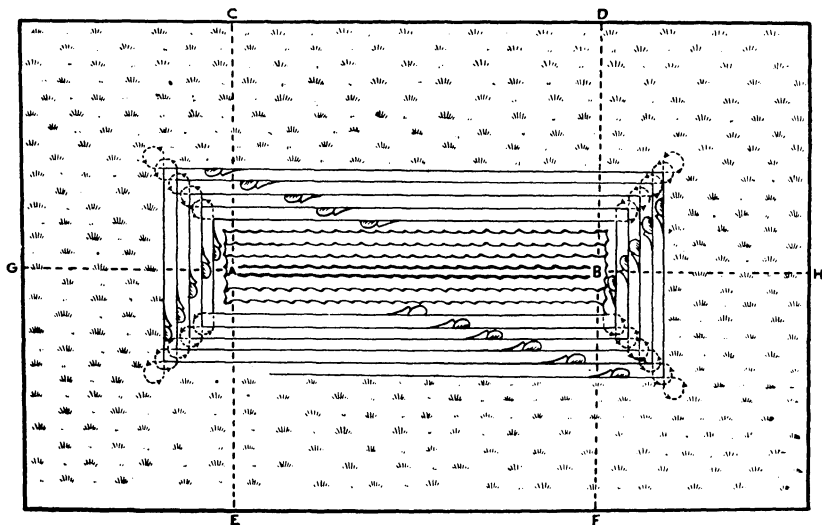


FIGURE 7.—Method 4, second stage. A field plowed around a central backfurrow, with square corners and furrows across the ends. This is the continuation of the plan shown in figure 6.

Except for these last few rounds, the net result of plowing a field by this method is the same as is ordinarily attained by plowing a backfurrow land with horses. The greatest objection is probably the time and travel necessary to make the turn to the left at each corner. This travel at each corner will amount to just about a complete circle. For a tractor with a 20-foot turning radius, this means something over 100 feet of travel. Many large tractors pulling several units of plows require a considerably greater turning radius than this. Thus the loss of time in many cases would be too great for this method to be advisable.

If the plows are hitched to the tractor in such a way that the outfit can be backed easily, the turns can be made by backing around through a quarter of a circle, as indicated in figure 8, with a comparatively small loss in time. Such an outfit can make these turns until the field is practically finished.

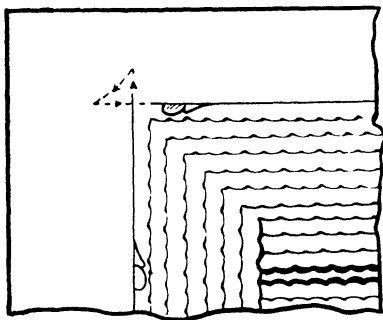


FIGURE 8.—Method 4, corner turns. The square turns shown in figure 7 are made by backing around the corners on a triangle.

METHOD 5

In method 5 the operator starts plowing at the outside of the field, as shown in figure 9, throwing the furrows toward the fence and turning to the left at the corners without lifting the bottoms.

A rectangular field like that shown is plowed in a single land with one deadfurrow. The corners will have to be rounded to a certain extent on the first trip around the field, and kept this way throughout the plowing so as to permit the tractor to make the turns without encroaching too far on the plowed ground or getting the furrows irregular and crooked near the corners. The plow will be pulled away from the last open furrow to a certain extent in making the turns, and the diagonal strips running from the ends of the deadfurrow to the corners of the field will usually have to be replowed (figs. 10 and 11).

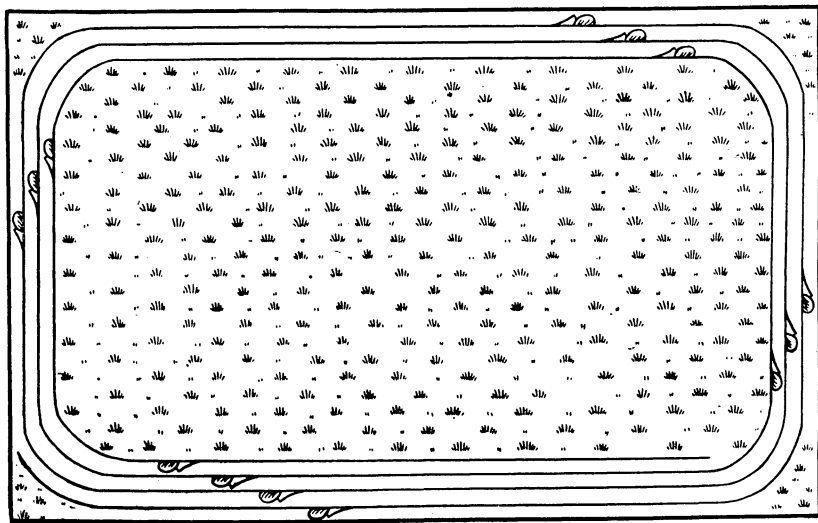


FIGURE 9.—Method 5, first stage. Plowing around a rectangular field by turning the furrows toward the fence, rounding the corners enough to permit turning without lifting the plows.

It is not necessary to measure any distances when this method of plowing is followed, and omitting the measuring will make this method quicker than any of the methods heretofore described. On the first round the plow can often be set over to the right and the ground turned nearer the fence than is possible in the two preceding backfurrow methods. The bottoms are left in the ground from the time the field is entered until the deadfurrow at the center is reached. This feature makes the method desirable if the plow is not equipped with a power lift. A field with slightly irregular or crooked boundaries can be plowed by following this method, practically as good a job being possible with no more effort than in a rectangular field. This method is very popular with many tractor operators and has been adopted almost exclusively where disk plows are used.

The body of the field can be plowed to a deadfurrow in the center, and the diagonal strips running in from the corners where the turn is made may be replowed one at a time or left to be plowed with horses. When this method is used it is necessary to pull out on to the plowed ground to turn, as the deadfurrow is approached and the unplowed land becomes narrow, also it is necessary to travel over the plowed ground in making the turns at the center of the field when plowing

the diagonals. Unless horses are to be used for this, one of the methods shown in figures 10 and 11, by which the diagonals are

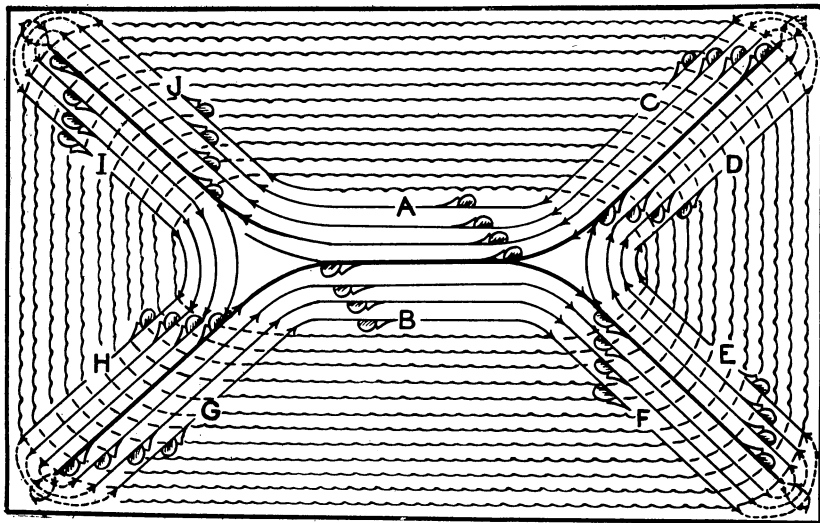


FIGURE 10.—Method 5, final stage. Plan for plowing the diagonal strips which are left imperfectly plowed at the turning points, leaving deadfurrows at the finish.

plowed out at the same time deadfurrow is finished, will usually be preferable.

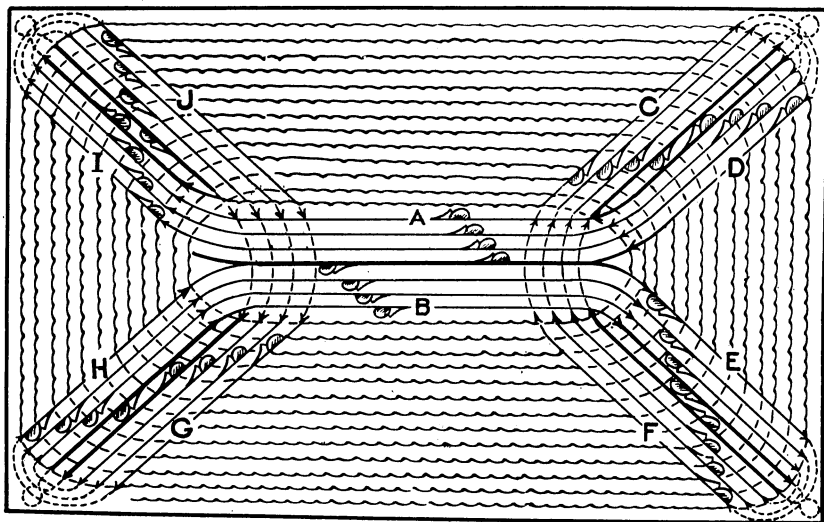


FIGURE 11.—Method 5, final stage. Another plan for plowing the diagonal strips which are left at the turning points in figure 9, leaving backfurrows at these points and a deadfurrow in the center.

By the method shown in figure 10 a deadfurrow is left along each diagonal, and by the method shown in figure 11 a backfurrow is made along the middle of each diagonal and open furrows on each

side. If the first-mentioned method is to be employed, when the distance from *A* to *B* (fig. 10) becomes the same as that from *C* to *D*, *E* to *F*, etc., the width to be replowed along the diagonals, turn to the right from the furrow next to *A* and follow along the line indicated through *J*, *I*, *H*, *G*, *B*, etc., and continue in this way until the diagonals and center are finished.

The tractor will have to do very little traveling over the plowed ground, and if care is taken to get all the distances exact the whole field, with the exception of the parts left for making the short turns at the corners, can be finished at the same time. The only times the bottoms are lifted are on the few short turns at the corners in plowing the diagonals.

If it is desired to have backfurrows along the diagonals instead of deadfurrows, the method of procedure will be that shown in figure

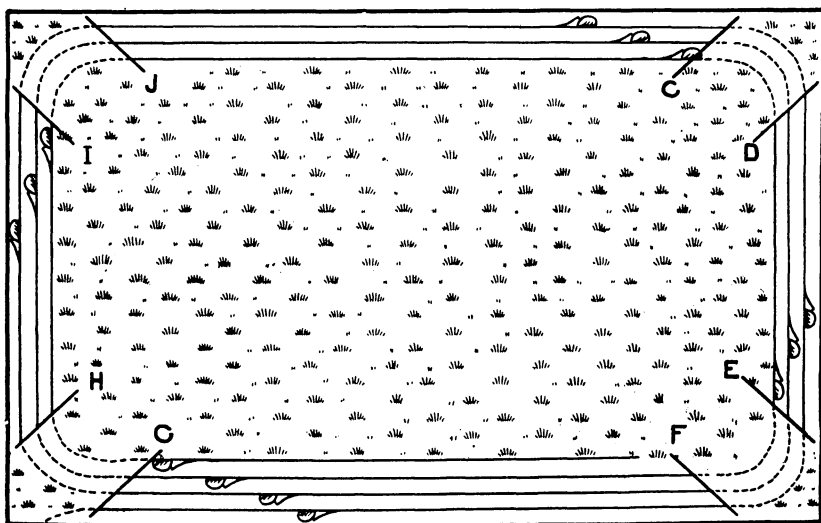


FIGURE 12.—Method 6. Plowing around a rectangular field as in method 5. The plows are lifted at the turns, as shown by the dotted lines.

11. It is similar to that shown in figure 10 except that the backfurrows are thrown up on the first trips along the diagonals. The turn is to the right at the corner of the field each time, the bottoms are taken out of the ground in going between the two diagonals at the same end of the field, and the outfit will have to travel over the plowed ground a little more at these points.

METHOD 6

Method 6 is like method 5 except that the bottoms are lifted each time at the corners in plowing the body of the field and the diagonals are left entirely unplowed until the finish of the field. Care must be taken to get the width of all the diagonals—that is, from *C* to *D*, *E* to *F*, etc., in figure 12—the same if either of the methods shown in figures 10 and 11 is to be used in finishing the field. The width should be ample for turning the outfit and getting it in line with the furrow before the point is reached where the bottoms are to

be put into the ground again. It will be better to make an extra round in plowing out the diagonals than to be cramped for space at every turn in plowing the body of the field.

IRREGULAR FIELDS

Irregular fields have such a variety of shapes and present such a variety of conditions that it is impossible to give any definite directions applicable for all. If the field is comparatively level, and the irregularities are confined to the boundaries on one or two sides, usually some one of the methods described for rectangular fields can be adopted.

Methods 1 and 2, as shown in figures 1, 2, and 3, may be readily adapted to fields with two long parallel sides and one or both ends irregular. Plans A and B or C and D may be used in fields of this shape. It is obvious that the lands should be plowed in the direction of the parallel sides of the field. Fields having only one long straight side may also be plowed by using method 1 or method 2 and making the obvious adaptations. In fields where the ends are far from a right angle to the direction of plowing it is suggested that the lands be made rather narrow in order to reduce the unproductive travel across long angular ends.

Figure 13 illustrates a field with the irregularities confined to a stream which forms the boundary at one end. Usually such a field can be plowed satisfactorily by using one of the methods in which the bottoms are lifted in traveling across the end, as is shown in figure 13. The procedure will be the same as in a rectangular field except in laying out the headland across the end adjacent to the stream. There the line for lifting the bottoms and letting them into the ground must be made parallel to the stream if the field is to be finished without undue loss of time in plowing the headland along the stream. If the headland is plowed by turning to the left so that the first round will take in the irregularities along the stream, it will probably be less difficult to finish it satisfactorily than if it is plowed by turning to the right, as shown in the figure.

If the irregularity is simply due to a road, railroad, or a farm boundary which is a straight line but does not run at right angles to the other boundary lines that join it, the problem of laying out and plowing the headland will be little, if any more difficult than in a rectangular field.

A good method of plowing a triangular field is shown in figures 14 and 15. This is really a variation of method 6, described on page 14. The body of the field is plowed by starting next to the fence, going round and round the field, turning always to the left, and lifting the plows at the corners. The distances from *A* to *B*, *C* to *D*, and *E* to *F*, in figure 14, should all be made the same and should be great enough to permit easy turning at the most acute angle of the field. That is, in a field such as that shown, the distance from *E* to *F*, which must be left for the sharp turn at this corner, should determine the distances from *A* to *B* and *C* to *D*. When the body of the field is finished there will be three strips, all the same width, one extending into the center of the field from each corner, left to be plowed in the manner indicated in figure 15.

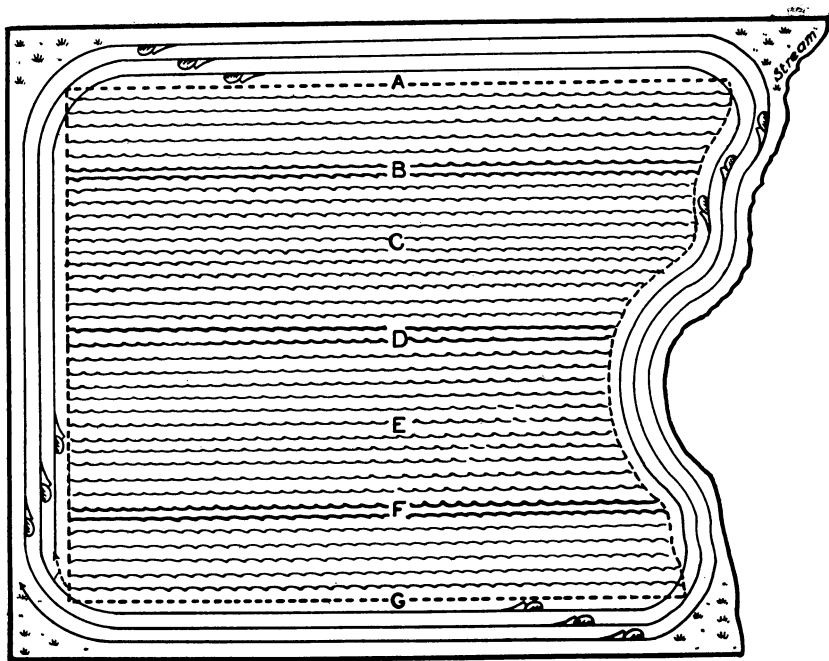


FIGURE 13.—Plan for plowing a field having one irregular side.

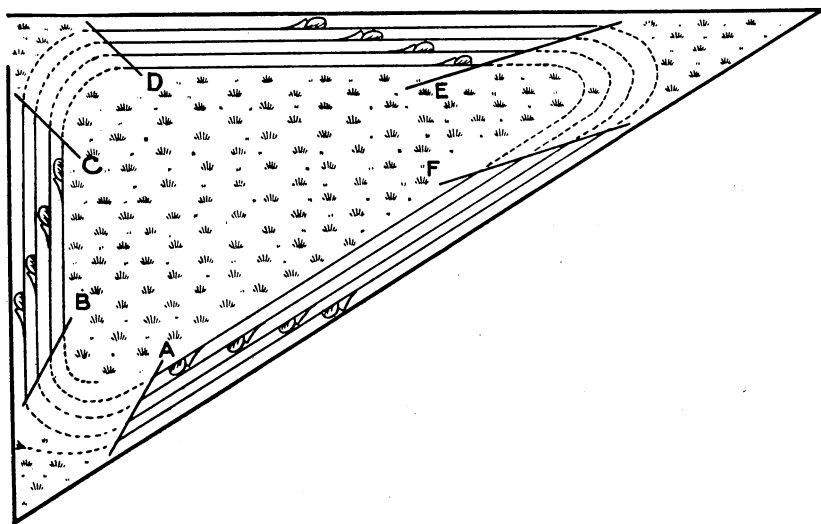


FIGURE 14.—An irregular field plowed by going around the field, lifting the plows at the turns, as shown by the dotted lines. The finish is shown in figure 15.